Global Interoperability Program

High-Level Infrastructure Support for Multi-Model Ensembles for Numerical Weather Prediction at NCEP

The primary work in this project is design and implementation of software infrastructure to support multi-model ensembles used in operational numerical weather prediction at the National Centers for Environmental Prediction (NCEP). Issues addressed include how multiple models in the ensemble can be configured, submitted, and run in an efficient and secure way. This work may be coordinated with NOAA centers that are implementing multi-model ensembles for climate. The tasks involved in this project are likely to include.

1. Learn the NCEP Earth System Modeling Framework (ESMF) codes.
2. Help design standard user interfaces to components in collaboration with other NOAA centers.
3. Work to implement standard user interfaces.
4. Help design high level structure of multi-model ensemble modeling for both weather and climate in collaboration with other NOAA centers.
5. Work to implement high level structure of multi-model ensemble modeling at NCEP.
6. Develop code standards in concert with National Environmental Modeling System (NEMS) developers.
7. Work with developers to unify the codes under consistent standards.
8. Help in the optimization of the components and couplers.
9. Work to make NEMS portable across more computer systems.
10. Aid in documentation.

After spinning up on current capabilities, the initial work should be in designing interfaces and high level structures and standardizing and unifying the full system. This job may take a year or so. The tasks of optimization and portability will be ongoing.